Remarks

Claims 2-31 and 34-44 are pending in the present application. Claims 2-31 and 34-44 stood rejected. Applicants have amended claim 7 and is traversing the 35 U.S.C. §102 and 35 U.S.C. §103 claim rejections. Applicants believe that no new matter has been added by the amendments to the claims.

Claim Objections

The Examiner objected to claim 7 as requested that an "is" be added. Applicants have complied with the Examiners request and believe that the objection has been addressed.

Claim Rejection – 35 U.S.C. § 112

Claims 7, 8, 11, 19, and 26 were rejected under 35 U.S.C. § 112, second paragraph paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended claim 7 are traversing claim 8, 11, 19, and 26 rejection without amending the claims. Applicants in amended claim 7 do not simply recite a maximum in claim 7. Applicants' claim 7 requires "a maximum residual error in the polynomial surface fit over the grid points is utilized to determine whether the error is below a predetermined threshold, where the maximum residual error is the largest determined residual error." The largest determined residual error in the polynomial surface fit over the grid points is required, not simply some vague undefined maximum. Further in paragraph [027] and paragraph [089] describes the maximum residual error for the polynomial fit.

In paragraph [027], the Applicants explain that the error is the maximum deviation of the grid point altitude from the surface fit. So, a grid point altitude that is different from the surface fit exists. Because this is a polynomial surface fit, the amount of deviation will vary depending on the grip point altitude. The greatest deviation is a maximum deviation of the grid point altitude, thus a maximum residual error. Therefore, the term "maximum residual error" is not a fixed amount, but is bounded by the grid point altitude and the polynomial surface fit. This is also stated in the claim language of claim 7 as; "...a maximum residual error in the polynomial surface fit over the grid points...". Therefore, claim 7 as now presented in not indefinite along with claim 8 that depends from claim 7.

With regards to claims 11, 19 and 26, these all are further defining the claim language of "determining an average height". When determining an average there is typically a data set that have unequal elements. That data set that is used to determine an average typically will have one value that is the largest value and one value that is the smallest value. Thus a maximum and minimum are typically found in the elements that make up a data set that are averaged. Therefore, the term maximum as defined in claims 11, 19, and 26 is bounded to be the data set used to determine the average. Applicants are not claiming a maximum with no relationship to any other claim elements or claiming a maximum in an abstract since. Therefore, Applicants submit that claims 11, 19, and 26 are in condition for allowance.

Claim Rejection – 35 U.S.C. § 103

Claims 2-9 and 34-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ptasinski et al. (non-patent publication) in view of Hancock (U.S. Patent No. 6,202,023). The

Examiner cites to Ptasinski et al (Hereafter Ptasinski) to describe "a horizontal error ellipse parameter (fig. 1, pages 452, 453) in the altitude equation that form an error ellipse having a major axis and a minor axis that correspond to the altitude error (figs. 1&2); a plurality of points along the major axis and the minor axis that form a grid of grid points (figs. 1 & 2; pages 452, 453)...". The Examiner goes on to Explain in the Response to Argument section of the previous Non-Final Office Action on page 16, that Ptasinski shows an ellipse to represent the shape of the earth (see fig. 1, page 452), but then latter in that paragraph on page 16 the Examiner calls the ellipse of fig. 1 "an error ellipse"; "[t]he error ellipse shown in fig. 1 has a major axis and a minor axis".

But, the Ptasinski publication labels fig. 1 as a "WGS-84 ellipsoid". The "WGS-84 ellipsoid" is a standard that is described in the Ptasinski publication on page 254; "WGS-84 is the ellipsoidal model of the Earth used in GPS positioning (DoD, 1996)." Therefore, fig. 1 is not an error ellipse as asserted by the Examiner. Rather it is an ellipse that was defined by the Department of Defense in 1996 as a model of the Earth used in GPS positioning.

Pages 452 and 453 of Ptasinski describe that a "range measurement is effectively a distance from the center of the earth to the user antenna based on the assumption that the user altitude above the reference ellipsoid is constant...A simulation has been carried out to determine the inaccuracy of locating a pseudo-satellite at the center of the Earth (see Figure 2). Assuming that given sphere should be exactly over the provided area of the reference ellipsoid, we placed the center of the sphere at the center of the ellipsoid...." No description or discussion of a grid of grid points was made or shown in figs. 1 & 2 or pages 452 and 453 of Ptasinski. No horizontal error ellipse parameter in the altitude equation that form an ERROR ELLIPSE having a major

axis and a minor axis that CORRESPOND to the ALTITUDE ERROR as claimed by Applicants is shown or described in Ptasinski.

What is described in fig. 2 of Ptasinski is a difference between a sphere with having a center at the center of the earth and the WGS-84 reference ellipse. The Examiner was correct in the Non-Final Office Action and the Final Office Action, when he identified the Ptasinski publication having only one sphere and an ellipse, but the ellipse is not an error ellipse.

Therefore the Ptasinski et al. reference fails to teach or describe "a horizontal error ellipse parameter in the altitude equation that forms an error ellipse having a major axis and a minor axis that corresponds to the altitude error" and "a plurality of points along the major axis and the minor axis that form a grid of grid points" as claimed by the Applicants.

The Examiner stated that "Ptasisnksi is not quite clear about a grid of grid of points", (Page 4, Non-Final Office Action dated March 4, 2008). But, states in the Response to Argument section on page 15 of a previous Non-Final Office Action that "Patasinski (figs. 5-10) mentions a digital map well known to show a grid of grid of points." The claim language from claim 2 is "a plurality of points along the major axis and the minor axis that form a grid of grid points". Thus, the grid of grid points is formed from a plurality of points along the major axis and the minor axis. Applicants are not simply claiming a grid of grid point in a digital map as the Examiner seems to be asserting.

Further, the Hancock patent is cited by the Examiner who believes "Hancock teaches of a two dimensional polynomial surface fit over a grid of points (Figs. 1, 2; cols 6, etc)", (page 4 of Non-Final Office Action dated March 4, 2008). But, nowhere in the Hancock patent can the applicants find the term "polynomial". Further, the term "surface fit" is not mentioned at all in

the Hancock patent. The reason for Hancock not mentioning "polynomial" or "surface fit" is that the Hancock patent does not teach or describe a two dimensional polynomial surface fit over a grid of points as asserted by the Examiner. The use of grids in the Hancock patent is not for "surface fitting", but is used to define "districts" that have grid systems placed relative to a reference point. (See Hancock patent, column 6, lines 20-22). Thus, Hancock's grid of grid points is used to define districts and divide the districts.

When the Ptasinski et al. reference is combined with the Hancock patent, the combination fails to teach or describe all the claim limitations as explained above and independent claims 2-9 and 34 are in condition for allowance. Similarly, dependent claims 35-44 are also in condition for allowance for the reasons stated above.

Claim Rejections – 35 U.S.C. § 102

Claims 10-31 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ptasinski et al. Applicants respectfully traverse this rejection for the reasons set forth below. The Examiner cites to figures 1 & 2 of the Ptasinski reference to show fitting a two-dimensional polynomial to the corresponding horizontal error ellipse. Applicants are not claiming fitting a two-dimensional polynomial to any ellipse; rather they are claiming fitting a two-dimensional polynomial to a horizontal error ellipse. As explained above, the Ptasinski reference does not teach or describe a horizontal error ellipse. The Ptasinski reference uses a standard WGS-84 ellipse as defined by the U.S. Department of Defense. This ellipse is not a horizontal error ellipse as claimed by Applicants.

The MPEP may recognize that the subject matter of the claims need not be described literally, but Applicants are not claiming a model of the earth ellipsoid, rather a horizontal error ellipse. The WGS-84 ellipse is not an error or a model of an error; rather it is a geometric model of the earth.

Therefore, claims 10-31 are in condition for allowance because the Ptasinski reference fails to teach or describe all of the claim limitations of Applicants' claims.

Conclusion

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

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If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Office Action.

Respectfully submitted,
THE ECLIPSE GROUP LLP

By: _____

Attorney for Assignee
Gregory Gulliver, Reg. No. 44,138
The Eclipse Group, LLP
100 Tri-State International, Suite 128
Lincolnshire, IL 60069

Customer No. **34408**